

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (Previously presented): A perpendicular magnetic head, comprising:
2 a first magnetic pole having a portion thereof that is exposed at an air bearing surface
3 (ABS) of the magnetic head;
4 a second magnetic pole including a pole tip thereof that is exposed at said ABS;
5 a heating element;
6 an induction coil structure that is disposed between said first magnetic pole and said
7 second magnetic pole, and
8 wherein said heating element is disposed between said induction coil structure and said
9 pole tip.

1 2. (cancelled)

1 3. (original): A perpendicular magnetic head as described in claim 1 wherein said second
2 magnetic pole includes a shaping layer that is disposed in magnetic flux communication with
3 said first magnetic pole, and a probe layer which includes said pole tip, wherein said probe layer
4 is disposed in magnetic flux communication with said shaping layer.

1 4. (withdrawn): A perpendicular magnetic head as described in claim 3 wherein said
2 shaping layer is disposed between said heating element and said pole tip.

1 5. (original): A perpendicular magnetic head as described in claim 3 wherein said probe
2 layer is disposed between said heating element and said shaping layer.

1 6. (withdrawn): A perpendicular magnetic head, comprising:
2 a read head element;
3 a first magnetic pole having a pole tip portion thereof that is exposed at an air bearing
4 surface (ABS) of the magnetic head;
5 a second magnetic pole including a portion thereof that is exposed at said ABS;
6 a heating element being disposed between said read head element and said pole tip; and
7 an induction coil layer that is disposed between said first magnetic pole and said second
8 magnetic pole.

1 7. (withdrawn): A perpendicular magnetic head as described in claim 6 wherein said first
2 magnetic pole includes a shaping layer that is disposed in magnetic flux communication with
3 said second magnetic pole, and a probe layer which includes said pole tip, wherein said probe
4 layer is disposed in magnetic flux communication with said shaping layer.

1 8. (withdrawn): A perpendicular magnetic head as described in claim 7 wherein said
2 shaping layer is disposed between said heating element and said pole tip.

1 9. (Previously presented): A hard disk drive including a perpendicular magnetic head,
2 comprising:
3 a media disk being adapted for rotation in a first direction;
4 said magnetic head including:

5 a write head element including a magnetic pole having a pole tip portion thereof that is
6 exposed at an air bearing surface (ABS) of the magnetic head, and disposed to write magnetic
7 bits to portions of said media disk;
8 a heating element being disposed proximate said pole tip, such that said heating element
9 is disposed to heat said portions of said magnetic disk prior to the writing of said magnetic bits to
10 said portions of said media disk;
11 another magnetic pole having a portion thereof that is exposed at said ABS;
12 an induction coil structure that is disposed between said magnetic pole and said another
13 magnetic pole, and
14 wherein said heating element is disposed between said induction coil structure and said
15 pole tip.

1 10. (cancelled):

1 11. (Previously presented): A hard disk drive as described in claim 9 wherein said magnetic
2 pole includes a shaping layer that is disposed in magnetic flux communication with said another
3 magnetic pole, and a probe layer which includes said pole tip, wherein said probe layer is
4 disposed in magnetic flux communication with said shaping layer.

1 12. (withdrawn): A hard disk drive as described in claim 11 wherein said shaping layer is
2 disposed between said heating element and said pole tip.

1 13. (original): A hard disk drive as described in claim 11 wherein said probe layer is
2 disposed between said heating element and said shaping layer.

1 14. (withdrawn): A hard disk drive as described in claim 10 wherein said first magnetic pole
2 includes a shaping layer that is disposed in magnetic flux communication with said second
3 magnetic pole, and a probe layer which includes said pole tip, wherein said probe layer is
4 disposed in magnetic flux communication with said shaping layer.

1 15. (withdrawn): A hard disk drive as described in claim 14 wherein said shaping layer is
2 disposed between said heating element and said pole tip.

1 16. (withdrawn): A method for fabricating a perpendicular magnetic head, comprising:
2 fabricating a first magnetic pole upon a layer of the magnetic head, wherein a portion of
3 said first magnetic pole is exposed at an air bearing surface (ABS) of said magnetic head;
4 fabricating a second magnetic pole in magnetic flux communication with said first
5 magnetic pole such that a pole tip portion of said second magnetic pole is exposed at said ABS;
6 fabricating an induction coil between said first magnetic pole and said second magnetic
7 pole;
8 fabricating a heating element within said magnetic head prior to fabrication of said
9 second magnetic pole.

1 17. (withdrawn): A method for fabricating a perpendicular magnetic head as described in
2 claim 16, wherein said step of fabricating said second magnetic pole includes the steps of
3 fabricating a probe layer that includes said pole tip, and fabricating a shaping layer portion of
4 said second magnetic pole upon said probe layer, wherein said shaping layer is formed in
5 magnetic flux communication with said first magnetic pole.

1 18. (withdrawn): A method for fabricating a perpendicular magnetic head as described in
2 claim 16, wherein said step of fabricating said second magnetic pole includes the steps of:

3 fabricating a shaping layer portion of said second magnetic pole and wherein said
4 shaping layer is formed in magnetic flux communication with said first magnetic pole, and

5 forming a probe layer upon said shaping layer in magnetic flux communication therewith,
6 and wherein said pole tip is formed as a part of said probe layer.

1 19. (withdrawn): A method for fabricating a perpendicular magnetic head, comprising:

2 fabricating a first magnetic pole upon a layer of the magnetic head, wherein a pole tip
3 portion of said first magnetic pole is exposed at an air bearing surface (ABS) of said magnetic
4 head;

5 fabricating a second magnetic pole in magnetic flux communication with said first
6 magnetic pole such that a portion of said second magnetic pole is exposed at said ABS;

7 fabricating an induction coil between said first magnetic pole and said second magnetic
8 pole;

9 fabricating a heating element within said magnetic head prior to fabrication of said first
10 magnetic pole.

1 20. (withdrawn): A method for fabricating a perpendicular magnetic head as described in
2 claim 19, wherein said step of fabricating said first magnetic pole includes the steps of
3 fabricating a probe layer that includes said pole tip subsequent to fabricating said heating
4 element, and fabricating a shaping layer portion of said first magnetic pole upon said probe layer.

1 21. (withdrawn): A method for fabricating a perpendicular magnetic head as described in
2 claim 19, wherein said step of fabricating said first magnetic pole includes the steps of:

3 fabricating a shaping layer portion of said first magnetic pole and wherein said shaping
4 layer is formed in magnetic flux communication with said second magnetic pole, and

5 forming a probe layer upon said shaping layer in magnetic flux communication therewith,
6 and wherein said pole tip is formed as a part of said probe layer.

1 22. (Previously presented): A magnetic head as described in claim 1 wherein said induction
2 coil structure includes a plurality of coil turns and an insulation layer that is disposed upon said
3 coil turns, and wherein said heating element is disposed between said insulation layer and said
4 pole tip.

5 23. (Previously presented): A hard disk drive as described in claim 9 wherein said induction
6 coil structure includes a plurality of coil turns and an insulation layer that is disposed upon said
7 coil turns, and wherein said heating element is disposed between said insulation layer and said
8 pole tip.